nucleolus, etc. The division of the nucleus of the nerve cell into two parts, reported by him, each with a nucleolus, without division of the cell body, is worthy of special note. Berger regards this as an incomplete regeneration of the nerve cell. He has observed changes in both horns of the cord in man after destruction of one pyramidal tract, but he was unable to find that lesions of this tract in the dog and cat, or of a posterior root in the dog, had any effect on the anterior cells of the cord. He explains the muscular atrophy seen in dementia paralytica by the cellular changes which he has observed, and states that such cellular alteration occurs in the anterior horns of the cord in 83 per cent. of all cases of general paralysis, and is most frequent in the lumbar region. He believes that the disease of the anterior cells is primary; that it is, to a certain extent, independent of degeneration of the white columns; and that there is no constant relation between the degree of these cellular changes in the cord and the degeneration in the brain.

SPILLER.

147. THE MORBID ANATOMY OF A CASE OF HEREDITARY ATAXIA. A. Meyer (Brain, 20, 1897, p. 276).

The author had an opportunity to study a case already reported by Dr. Sanger Brown. The following general statements are offered:

1. There is no circumscribed cerebellar lesion, nor does the cortex show a marked decrease of the number of the Purkinje cells.
2. Parts of the spinal cord and medulla which are known to have relations with the cerebellum were found affected.
3. The spinal cord, as a whole, shows increase of the superficial neuroglia, and a remarkably large number of corpora amylacea, similar to what is seen in very old people, in paralysis agitans, etc.

JELLIFFE.

148. FAIT RELATIF A L'ÉTUDE DE LA PATHOGÉNIE DES ARTHROPATHIES ET DES FRACTURES SPONTANÉES CHEZ LES TABÉTIQUES (The Pathogney of Arthropathies and Spontaneous Fractures in Tabetics). A. Pitres et G. Carrière (Archives Cliniques de Bordeaux, 5, 1896, p. 483).

The authors give the clinical history and pathological findings in a case of tabes in a man of 58, in whom the disease had existed since his twenty-sixth year. At 38, there was spontaneous fracture of the right tenth rib; at 42, arthropathy of the left knee. The autopsy and microscopical examination showed the usual sclerosis of the posterior columns, no change in the antero-lateral columns or the cells of the anterior horns; advanced atrophy of the posterior roots, the anterior roots normal; diffuse alterations in the ulnar, intercostal and nerves of the lower extremities, especially marked in the nerves of the left knee-joint, and the tenth right intercostal—supplying the fractured rib. They then discuss the two theories proposed to account for arthropathies and spontaneous fractures.

The one theory makes the trophic disturbance of the bones and joints dependent upon atrophy of the cells of the anterior horn; the other refers it to degeneration of the peripheral nerves, especially of those supplying the diseased part. Collecting all available observations, they find that in only four cases alterations in the cells of the anterior horn are reported, and these cases were studied before the development of our present technique.

On the other hand, between 1882 and 1896, seventeen cases have been examined, and in none of these was found alteration of the cells of the anterior horns. In eleven of these cases the peripheral nerves were examined, and in each case there was nerve degeneration more or less widely distributed, but most marked in the nerves supplying the affected bones or joints. The authors regard the number of observations as yet too few to speak with positiveness, but think the weight of evidence so far in favor of the neuritic, rather than of the myelopathic theory. Allen.

149. Ueber Nervenzellenveränderungen des Vorderhorns bei Tabes (Concerning Changes in the Cells of the Anterior Horns in Tabes). Karl Schaffer (Monatsschrift f. Psychiatrie u. Neurologie, 3, 1898, p. 64).

Schaffer attempts to prove that the cells of the anterior horns of the spinal cord are much altered in cases of tabes with trophic lesions, and that these cellular changes are the cause of the tabetic amyotrophy, osteopathy and arthropathy. In all instances of tabes with trophic lesions reported in the literature by other writers in which the peripheral nerves have been examined, these nerves have been found degenerated, and central lesions, apart from those in Leyden's case, have not been positively observed. Schaffer, however, two years ago published a case of tabetic amyotrophy and arthropathy of one lower limb, in which the cells of the anterior horns of the lumbar cord presented marked chromatolysis. In the present paper he reports the results of an examination of four new cases of tabes, only one of which was without trophic lesions. The changes in the cells of the anterior horns were the same whether amyotrophy, osteopathy or arthropathy existed, and were present in all cases with trophic disturbances. They were more advanced in cases with osteopathy and arthropathy than where amyotrophy existed alone. Central chromatolysis (destruction of the chromophilic elements about the nucleus) was almost invariably the earliest cellular lesion in these cases of tabes, and the disintegration extended peripherally. The edge of the nucleus appeared folded, the nucleus was eccentric, was stained a pale blue (normally it is unstained), and its shape was irregular. Later the nucleus was indistinct, the shape of the nucleolus was much altered, and the cell lost its processes. The nucleus and nucleolus exhibited degenerative changes only when the entire cell was altered.

Shaffer says that the Nissl method, as far as his experience in cellular pathology goes (infectious, toxic, trophic and nutritive changes), does not show specific staining in any case. The lesion is always chromatolysis, which, in its essential features, is always the same. This is a very different opinion from the one he formerly held. In tabes, however, vacuoles in the cells are not numerous, and this infrequency is due to the chronicity of the process, for vacuoles indicate an acute process.

The location of the cellular lesions in the cases of tabes corresponded to the centres of the parts involved in the trophic lesions, and in the one instance in which the latter were not observed distinct cellular changes were absent. He was unable, however, to find distinct groups of degenerated cells, as diseased cells were mingled with normal ones.

In chronic processes, according to Schaffer, only a portion of the cell body is at first affected ("partial degeneration"), and a decrease in the cell's vitality is caused in this way, which manifests itself first at the periphery of the neuron, i. e., in the end ramifications. As this "partial degeneration" increases, more central portions of the neuron are involved, and the alteration of the nerve gradually creeps upward toward the cell body. Chromatolisis must be regarded as a pathological process, and as the result of disturbed cellular nutrition; it is, therefore, an indication of the disturbed function, inasmuch as the latter depends on the cell's impaired vitality.